

THYTECH thyTreg cell therapy

Background

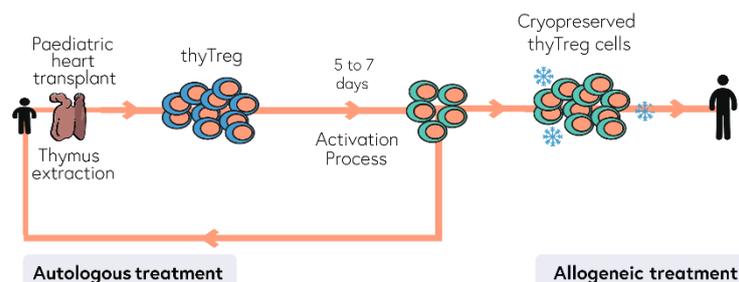
The number of patients developing immune-related disorders is increasing with autoimmune diseases alone affecting 5-10% of the global population. In addition to over 80 recognised chronic autoimmune disorders (such as multiple sclerosis and type 1 diabetes), acute immune responses are common in patients post-transplantation (graft-versus-host disease and graft rejection) and in cytokine release syndrome, a symptom of COVID-19 patients.

Cell therapies provide an alternative to immunosuppressant drugs, promoting immune tolerance as opposed to non-specifically suppressing the immune system, potentially overcoming the limitations of conventional drug treatment. The most researched cell therapy uses a subset of CD4+ T cells, Tregs, that exhibit suppressor functionality, that have been shown to induce immune tolerance *in vitro* and in a clinical setting. Mechanism of action shown right.

Product

La ThyTreg cells are high quality, high purity Treg cells with exceptional suppressive capacity that overcome the major limitations of current Treg cell technologies. ThyTreg cells are isolated from the thymus which is routinely discarded following paediatric heart transplant.

ThyTreg cells are a promising therapy for allogeneic use. We envisage providing an “off-the-shelf” allogeneic treatment for patients without the weeks long waiting time associated with genetic modification and expansion required for current autologous cell therapies.



Clinical Validation

THYTECH is currently undertaking a first-in-human Phase I/II clinical trial investigating the safety and efficacy of ThyTreg autologous treatment in paediatric patients following heart transplant (EudraCT: 2018-003574-28).

The next scheduled trial is a first-in-human Phase II trial using allogeneic THYTECH therapy for the treatment of immune hyperactivation in COVID-19 patients (EudraCT: 2021-003240-25). Future planned trials will include allogeneic ThyTreg cell therapy for graft-versus-host disease (GvHD) and Crohn’s disease.

Advantages

ThyTreg cells provide an alternative solution. ThyTreg cells are undifferentiated, naïve cells conferring low immunogenicity when transplanted. No expansion is required due to the high number of cells acquired per thymus (5000X more than from peripheral blood extraction), and these cells can be cryopreserved for “off-the-shelf” allogeneic treatment.

ThyTech is a new advanced cell therapy based on the use of thymus-derived Treg cells to induce immune tolerance for the treatment of diseases related to undesired immune responses.

Application

ThyTreg cells are applicable in a wide range of immune related conditions but our primary focus areas are autoimmune disease, acute respiratory distress syndrome (COVID-19) and organ transplant (GvHD).

Intellectual Property

WO2019166658 - Method For Obtaining Regulatory T Cells Derived From Thymic Tissue And Use Of Said Cells As Cell Immunotherapy In Immune System Disorders. **Owner:** Fundación Para La Investigación Biomédica Del Hospital Gregorio Marañón **Publication Date:** 6th September 2019 **Priority Date:** 1st March 2018 **Status:** National Phase entry.

Team

The team is based in the Laboratorio de Inmuno-Regulación (LIR) at the Institut de Investigació Sanitaria Gregorio Marañón (IiSGM) and led by Principal Investigator Dr. Rafael Correa Rocha. Other key members of the team include Dr. Marjorie Pion, Principal Investigator in the Hospital General Universitario Gregorio Marañón, and Esther Bernaldo de Quirós Plaza, PhD student in the LIR.

Contacto:

Elena Canetti, Inveniam Managing Partner
Partnerelena@inveniam-group.com

Cristina Vilarmau, Inveniam Associate
cristina@inveniam-group.com